

PATENT

Attorney Docket No. VACCINE-07083

AMENDMENTS TO THE CLAIMS

1. (currently amended) An antigenic composition comprising a heterologous antigen ~~linked to~~ inserted within the amino acid sequence set forth in SEQ ID NO:38, wherein said heterologous antigen is 50 or fewer amino acids in length and is inserted at a position chosen from amino acid residues 44, 71, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85, ~~92, N-terminal or C-terminal~~ or 92 of SEQ ID NO:38, and wherein said heterologous antigen and said amino acid sequence assemble as a hybrid particle.

2. (canceled)

3. (previously presented) The composition of Claim 1, wherein said position is chosen from said amino acid residues 77, 78, 81, or 82.

4-7. (canceled)

8. (currently amended) The composition of Claim 1, wherein said heterologous antigen is inserted at a position chosen from said amino acid residues 44, 71, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85 or 92, and in a position chosen from ~~said~~ N-terminal or ~~said~~ C-terminal.

9. (canceled)

10. (original) The composition of Claim 1, wherein said heterologous antigen comprises at least one B cell epitope.

11. (original) The composition of Claim 1, wherein said heterologous antigen comprises at least one T helper cell epitope.

12. (currently amended) The composition of Claim 1, wherein said amino acid sequence further comprises ~~an artificial C-terminus of~~ from 1 to 100 amino acids at the carboxy end of residue I¹⁴⁹.

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13. (previously presented) The composition of Claim 12, wherein said 1 to 100 amino acids is chosen from K¹⁵⁰, A¹⁵⁰, R¹⁵⁰R¹⁵¹C¹⁵², SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, or SEQ ID NO:20.

14. (withdrawn) The composition of Claim 12, wherein said 1 to 100 amino acids is chosen from SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, or SEQ ID NO:36.

15. (withdrawn) The composition of Claim 12, wherein said 1 to 100 amino acids is chosen from SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:49, SEQ ID NO:50, SEQ ID NO:51, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, or SEQ ID NO:56.

16. (original) The composition of Claim 1, wherein said amino acid sequence further comprises at least one immune enhancer sequence.

17. (previously presented) The composition of Claim 1, further comprising woodchuck hepatitis virus core antigen chosen from wild type woodchuck hepatitis virus core antigen and modified woodchuck hepatitis virus core antigen lacking a heterologous antigen.

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18. (currently amended) A nucleic acid sequence encoding an antigenic hybrid woodchuck hepatitis virus core antigen, comprising a heterologous antigen inserted within the amino acid sequence set forth in SEQ ID NO:38, wherein said heterologous antigen is 50 or fewer amino acids in length and is inserted at a position chosen from amino acid residues 44, 71, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85, ~~92, N-terminal or C-terminal~~ or 92 of SEQ ID NO:38, and wherein said heterologous antigen and said amino acid sequence assemble as a hybrid particle.

19. (original) An expression vector comprising the nucleic acid sequence of Claim 18.

20-35. (canceled)

36. (previously presented) A vaccine comprising the antigenic composition of Claim 1.

37. (previously presented) The vaccine of Claim 36, formulated for human administration.

38. (previously presented) The composition of Claim 1, wherein said heterologous antigen further comprises flanking glutamic acid residues.

39. (previously presented) The composition of Claim 1, wherein said heterologous antigen further comprises flanking aspartic acid residues.

40-47. (canceled)

48. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 44.

49. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 71.

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50. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 72.

51. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 73.

52. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 74.

53. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 75.

54. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 76.

55. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 83.

56. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 84.

57. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 85.

58. (previously presented) The composition of Claim 1, wherein said position is amino acid residue 92.